

Cassettes

Introduction

A radiographic film cassette is a rectangle or square plastic or metallic container used to hold x-ray films (exposed or unexposed) and intensifying screens in close and uniform contact with one another.

DEFINITION:

A flat, light-tight container in which x-ray films are placed for exposure to ionizing radiation and usually backed by lead to eliminate the effects of back scatter radiation.

Construction

- Consists of a front and a back hinged at one edge.
- Thin sheet of lead foil attached on the back side which is further attached to a plastic foam pressure pad and an i.s.
- The front, also referred to as cassette wall contains front i.s. and a short lead blocker used for patient identification.
- A range of locking methods are used, from spring clips to sliding locking bars, which serve to exclude light and along with foam pads maintain close contact between film and screens.
- All the internal metal or plastic surfaces are given black coating to prevent internal light reflections.
- To ensure good film-screen contact a slightly curved cassette back is used which minimizes photographic unsharpness.

Types of cassettes available

1. i) Single screen cassettes:

- Have a single .
- Designed to be used with single sided emulsion film
- Principal application in mammography.

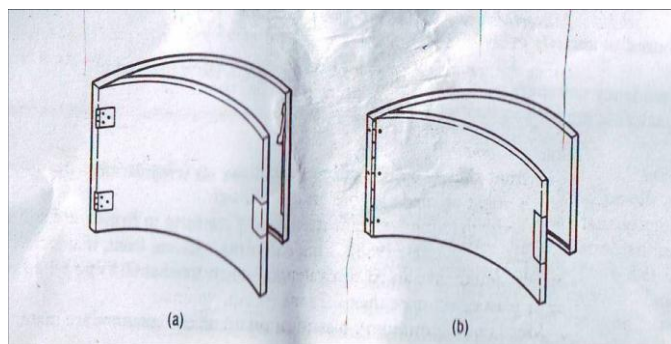
2. ii) Double screen cassettes:

3. Have screen on both sides

- Used with double sided emulsion film
- Used in general radiography

4. Curved cassettes:

- Internally constructed as conventional cassette with double sided .
- Only shape is curved to provide good contact between object and cassette.
- Mainly available in two types:
 - i. First type used when object- cassette contact cannot be achieved with conventional flat cassettes
 - ii. Second type used to obtain views of mandible and maxilla in orthodontic radiography



5. Gridded cassette:

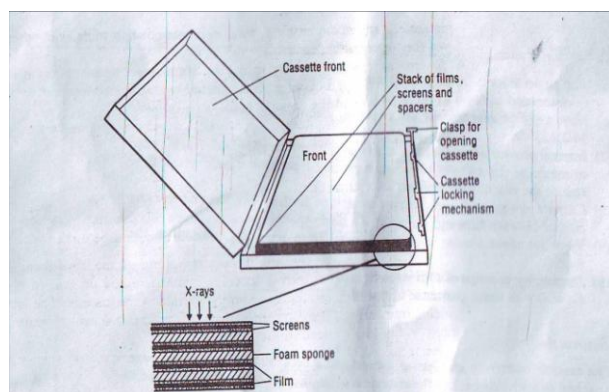
- Have a secondary radiation grid between the front i.s. and the front of cassette.
- Used for radiography where a conventional bucky system is unavailable e.g. in ward radiography.

6. Multi section cassettes:

- Designed to hold 3-7 films, with their respective i.s. and spacers of about 5 or 10 mm in thickness

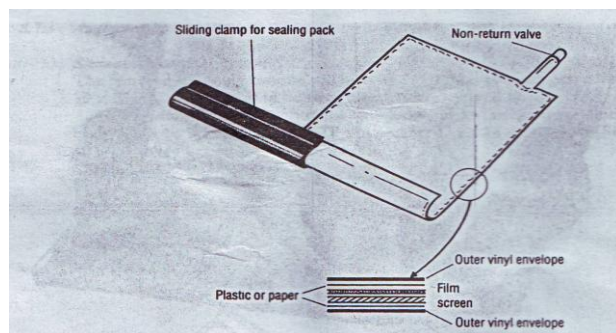
Advantage of using spacers:

- Films which are separated by 5mm spacers will produce images of body sections 5mm apart and like wise with 10 mm spacers



7. Vacuum cassettes

- Made from flexible vinyl material
- Have a valve attached at one end
- Inside is removable plastic folder containing single i.s.
- For use a single sided emulsion film is inserted inside the folder .
- The entire folder is placed inside the cassette and sealed.
- Vacuum pump is attached to the valve and air expelled, thus bringing the is and film in close contact



Uses of vacuum cassette:

Primarily developed for use in mammography In joint radiography, their inherent flexibility can be used as an advantage in positioning, e.g. under a flexed joint

Angiography cassettes Can hold upto 30 sheets of films, size 35*35 cm each positioned with metal spacers After loading and sliding the two panels, the cassette can be inserted into the AOT equipment Exposed films will have been transferred via exposure area of AOT apparatus to the take-up cassette A button on the front is pressed closing the sliding lid The take-up cassette can then be taken to darkroom and processed

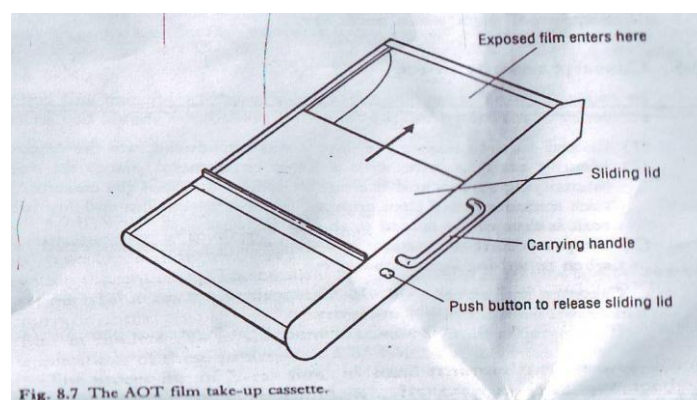


Fig. 8.7 The AOT film take-up cassette.

Photo fluorography cassette

- Photo fluorography or the recording of images from output phosphor of an image intensifier tube is usually carried out on 70 mm or 105 mm roll film or on 100 mm sheet film.
- All the above various film formats have their individual cassette system.

Computed radiography (CR) cassettes

- Halide used may be bromide, iodide or a combination of both.
- Cassettes are used just like conventional cassettes on normal radiographic equipment and available in similar sizes.
- Information is stored in PSP imaging plates as electrons, in semi-stable higher energy states

Loading and unloading a cassette:

- The life of i.s. depends on the care during film loading and unloading.

➤ **Unloading:**

Under safelight, the cassette is placed face downwards on the bench and locking clip released. The cassette is then turned over and the front of the cassette is tripped so that the film falls from the cassette well. The film is removed with free hand and the cassette loaded.

➤ **Loading:**

- Under safelights, the cassette is placed face downward on the bench and as before opened from the back. The unexposed film, tightly gripped at its edge is lowered gently into the cassette well. The cassette is closed by bringing over the back and engaging the locking clip.

Applications

- Hold intensifying screens and protect them from damage.
- Exclude all light from entering the cassette and fogging the film.
- Maintain a close and uniform contact between the film and screens.
- Exclude dust and dirt from the sensitive screens.
- Act as a medium from exposure up to further processing of film.

Sources :

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Link: <http://www.slideshare.net/EddyIskandar/intensifying-screens>

Link: http://en.wikipedia.org/wiki/Computed_radiography

Done by :

- *Abdulelah Hassan al-talaq.*
- *Ali Alghawi.*
- *Abdullah almukhrak.*
- *Haider Alhamood.*